Meeting to discuss recent proposed changes in PD Front End magnet requirements
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We met briefly on 11/16/2005 to review the latest solenoid magnet requirements which were sent by Peter Ostroumov. Peter Ostroumov's email (11/14) details the revisions:

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I have revised the specs to solenoids and came up with these numbers
for B2*L in [T2*m]:
Type 1
      (MEBT -RT section)  - 2.5
      Aperture diameter 20 mm
Type 2
      SSR  - 3.0
      Aperture diameter - 30 mm
Type  3 -
      DSR   - 5.0; the Bpeak should be lower than 6 Tesla to avoid H-
      minus
      stripping in the edge fields.
      Aperture diameter -30 mm
For type 1 and 2 the effective length = Integral(B(z)*dz)/Bpeak should
be less or = 10 cm
The field extension is desirable to have over the distance which is
less than 2*Leff.
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Yuri summarized the existing and new requirements in the following tables:

I. Old specs: June 2005.
Negotiated with G. Romanov (based on the tracking results by P. Ostroumov)

	DTL	MEBT	SSR	DSR
Parameter				
Bore diameter	25 mm	25 mm	30 mm	30 mm
Bore type	warm	warm	cold	cold
Field Integral FI = $\int B^2 dl$ ($T^2 \cdot cm$)	218	264	313	478
Recommended Bm (T)	5	5.5	6	5.4
Leff (cm) @ Bm	9.78	9.78	9.78	17.66
Available insertion gap (cm)	25 (18 ?)	(18 ?)	39 (18 ?)	30 (32 ?)

II. New specs: Nov. 2005. Received from P. Ostroumov by E-mail

	DTL	SSR	DSR
Parameter			
Bore diameter	20 mm	30 mm	30 mm
Bore type	warm	cold	cold
Field Integral FI = $\int B^2 dl$ ($T^2 \cdot cm$)	250	300	500
Recommended Bm (T)			< 6
Leff (cm) @ Bm	< 10 cm	<10 cm	
Field extension	< 2*Leff	Sharp edges	Sharp edges
Available insertion gap (cm)			

Comments and Issues:

Yuri notes that field integrals have increased and that the new requirement, "Field extension", would require bucking coils and a heavy steel core to achieve and hence a re-design of the RT solenoids. This change would also increase the "available insertion gap", (aka 'slot length') and undoubtedly require further modifications to the lattice design.

To the best of our knowledge, the 'field extension' requirement is determined solely by the needs of the simulation program; it is not a physical beam requirement. At the moment we interpret this parameter as a length where field integral B^2*dl is 99% of its design value (tabulated). Clarification of the issue is required.

The B_{max} requirement (H^- stripping) for the DSR (5.4T) is exceeded in the preliminary magnetic design. It was argued that the appropriate limit is on B_{radial} and this value is much smaller than B_{max}. Yuri will check the stripping field limits with Bill Foster and Vladimir Kashikhin.

Tom Page will be asked to look at a realistic slot length for shielded versions of the RT solenoids and at a possibility to reduce radial space now occupied by the helium vessel walls, superinsulation, and LN shielding.

We will look at the impact of a re-design of the RT solenoids, but do not plan any formal re-design activity until these issues are resolved and until the test solenoid is fabricated and tested.